Zhiyun Liang

(+86) 182-0716-8580 liangzhiyun24@163.com zhiyun-liang Homepage

Education

China Agricultural University Sept. 2020 – July 2024
B.S. in Data Science and Big Data Technology *Beijing, China*

- GPA: **3.81/4.0** (Ranking: **4/37**)
- Courses: Linear Algebra (A-), Probability Theory (A), Data Structure (A), Algorithms Design and Analysis (A), Principles of Database Systems (A), Operating System (A), Machine Learning ($A+$), Artificial Intelligence (A)

Publications

1. Yihe Liu*, Ziqi Yuan*, Huisheng Mao, **Zhiyun Liang**, Wanqiuyue Yang, Yuanzhe Qiu, Tie Cheng, Xiaoteng Li, Hua Xu, Kai Gao. Make Acoustic and Visual Cues Matter: CH-SIMS v2.0 Dataset and AV-Mixup Consistent Module. In *24th ACM International Conference on Multimodal Interaction.* **(ICMI 2022, Oral)**. [PDF]

Research Experience

Tsinghua University Mar. 2022 – Present
Research Intern, Supervised by Prof. Hua Xu *Beijing, China*

1. **Investigating Robustness and Interpretability in Multimodal Sentiment Analysis**
   - Proposed the OpenVNA framework for model robustness evaluating, which contains a comprehensive video noise injection toolkit covering a wide range of real-world applications.
   - Integrated eight baselines on two human-centered video understanding tasks into the standardized evaluation process within the OpenVNA framework.
   - Constructed the CH-SIMS v3.0 dataset, which consists of over 10,000 annotated utterances with fine-grained facial features and speech intonation features.
   - Computed the SHAP values of features to provide explanations for MSA models' predictions.
2. **Enhancing Non-Verbal Representation in Multimodal Sentiment Analysis**
   - Developed CH-SIMS v2.0, the largest semi-supervised Chinese MSA dataset comprising 4402 supervised data with unimodal annotation and over 10,000 unsupervised data.
   - Proposed the Acoustic Visual Mixup Consistent (AV-MC) framework for both supervised and semi-supervised training paradigms to simulate unobserved non-verbal behaviors corresponding to spoken words.
   - Conducted extensive experiments on CH-SIMS v2.0 and other MSA datasets utilizing the AV-MC framework and achieved competitive performances with state-of-the-art models.

China Agricultural University Mar. 2022 – Mar. 2023
Research Intern, Supervised by Prof. Jingbo Zhao *Beijing, China*

1. **3D Alpine Skiing Game with Wii Balance Board Control**
   - Developed a skiing simulation game using Unity3D, encompassing UI, animation, and interaction design.
   - Integrated the Wii Balance Board as a peripheral device for player control.

North Carolina State University Jan. 2022 – Feb. 2022
Research Intern, Advised by Prof. Al Chen *Remote*

1. **Carbon Emissions Analysis and Sustainable Development in the Logistics Industry**
   - Analyzed carbon emission trends in the logistics industry, and identified the top 3 factors influencing carbon emissions in logistics through the application of DBSCAN clustering algorithm.
   - Explored the significant impact of transportation on carbon emissions, accounting for over 20% of total emissions, through the Comparative Study on Urban Transport and the Environment (CUTE) framework.
   - Proposed targeted measures for carbon emissions reduction and sustainable development in logistics enterprises, drawing insights from successful case studies of JD Logistics and Amazon.

Skills

Languages: Mandarin (Native), English (Fluent, TOEFL: 102, GRE: 325)
Programming: Python (PyTorch, TensorFlow, Scikit-Learn), C/C++, Java, SQL
Tools & Frameworks: Git, Vim, LaTeX, Hadoop, VS Code, PyCharm, Unity